

Recovery Techniques to Improve Fitness, Drill Execution, Focus, and Contest Performance

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The research and anecdotal evidence is overwhelming that simple recovery techniques help overall training and performance (and may be good for injury prevention and heat related issues).

Methods BEFORE/BEGINNING Practice/Contest

Have a cue/purpose/statement/quote/focal point/emphasis set for that practice

- Keeps the mind off of extraneous factors that can increase fatigue

Snack and fluids toward end of school day or immediately after school

- Honey, Fruit, Lara Bar, Clif Bar, bagel, pretzels - something easily digested and not filling
- Eat something for breakfast - depending on length of time from breakfast to contest (oatmeal, bagel/BPJ, pancakes, eggs... foods that digest easily and do not spike the blood sugar)

Warm up complementary to the purpose of that practice or competition

- Pre-practice static stretching may actually be detrimental to power related activities (plenty of research on this)
- Utilize various multi-joint, “dynamic” or movement oriented exercises that increase core temperature, go through a full range of motion, and progressively mimic the segments of the workout or contest.
- Skips, gallop, shuffle, crossover, carioca, bear crawl, crab walk, hop, bound, jump, jump rope going forward, backward, sideways, or at angles progressively for motor control, skips: height, distance, speed, or rhythm. Can progressively be done barefoot
- Add movements like multi-directional lunges with an upper body movement (reach), various body weight squats, or yoga type movements or stabilization exercises or transformers
- Accelerate and/or running progression appropriate for the next practice activity
- **Massage (stick) roller, foam roller, and/or muscle massager may increase blood flow to the area and break up knots and enhance tense areas**

Recovery Methods DURING Practice/Contest

- o Fluids: Water, Electrolyte/Sports drinks (NEVER energy drinks)
 - o PowerAde (cold and diluted), Hammer HEED, Shaklee Performance, Ultima Replenisher, VegaSport Electrolyte Hydrator. Can be diluted to taste.
- o Ice towels/mist-spray bottle/head or neck with cold water/cold water on face or head or ice in hand(s)
- o Massage rollers
- o Foam Rollers
- o Change shirts or socks ½ way through practice
- o Introduce a cue, a visual, a word/phrase/concept/feeling to better focus
 - o “Feel the breeze” is a good cue when hot (when an athlete keeps walking/moving, it is easier to “feel” a breeze which cools them)
- o Take off shoes...walk barefoot...
- o Put feet, head, or hands in ice bucket
- o Feet up above head (allows blood flow back to heart and may help reduce waste product buildup)
- o Rest, whether active (walking) or sedentary (standing, feet up, in front of fan, etc)
- o Use the Icy Breeze

Recovery Methods AFTER practice/contest

- o Massage rollers, foam Rollers, stretch strap
- o Stretching (Achilles, calves, hams, glutes, low back, groin, IT band, hip flexors, quads, shoulders, upper back). Some studies/anecdotes show stretching up to 1-2 minutes as beneficial

- o Take off shoes...walk barefoot
- Cryotherapy/ice water baths – temperature 50-60 degrees
https://training-conditioning.com/news/cold-water-immersion-muscle-recovery/?oly_enc_id=9029F8695790G2T
- Fluids
 - o Water and/or sports drink (NEVER energy drinks)
 - o Simple 4:1 carb:protein type recovery drinks such as chocolate milk w/n 30 minutes after practice
- Snacks – nutrient bars
 - o Whole or natural or non-process or fewer ingredients (Lara, Cliff, other or foods w/ few ingredients)
 - o https://coachad.com/articles/rapid-recovery-refueling-the-body-after-an-intense-workout/?oly_enc_id=9029F8695790G2T

During exercise glycogen is broken down to adenosine triphosphate (ATP) and used to supply energy to the body. Hypoglycemia (low blood sugar) can result if glycogen uptake exceeds the body's glycogen production. Beverages are quickest and easiest to aid in the resynthesis of glycogen as well as rehydrate.

Summary of research in the review:

- Athletes can maximize glycogen resynthesis during the 30-60 minutes following a workout, when the body can do so independently of insulin.
- Glycogen resynthesis is highest when post workout carbohydrate intake is 1.0-1.5g per kilogram of bodyweight.
- Carbohydrates with a higher glycemic index increased glycogen storage in the muscles, compared to lower glycemic carbohydrates (i.e. fruits, juices...)
- Glucose and sucrose enable a higher rate of muscle glycogen storage than fructose.
- Branched-chain amino acids may have an anabolic effect during recovery.
- **A combination of protein and carbohydrates post workout is more effective at restoring glycogen than a carbohydrate only drink.**
- The addition of antioxidants to post workout beverages could reduce muscle soreness by lessening oxidative stress and muscle damage.
- **Low fat chocolate milk was found to be more effective than a standard carbohydrate-protein drink as a post workout recovery drink, possibly due to the combination of proteins, carbohydrates, and the antioxidant properties of cocoa.**
- **Cyclists consuming low-fat milk after training were found to retain more fluid and be better hydrated than those drinking a standard carbohydrate-electrolyte drink.**

In addition, during or post workout beverages should include potassium, chloride, and sodium to restore electrolytes.

IN SHORT, TAKE IN FLUIDS OR FOOD WHICH INCLUDE CARBOHYDRATES AND PROTEINS WITHIN 30 MINUTES AFTER INTENSE EXERCISE AND FOLLOW THAT UP WITH A GOOD MEAL WITH LOTS OF COLOR, CARBS, AND PROTEIN.

According to a Runner's World article lauding the benefits of Ice Baths:

"Cryotherapy ("cold therapy") constricts blood vessels and decreases metabolic activity, which reduces swelling and tissue breakdown. Once the skin is no longer in contact with the cold source, the underlying tissues warm up, causing a return of faster blood flow, which helps return the byproducts of cellular breakdown to the lymph system for efficient recycling by the body. "Ice baths don't only suppress inflammation, but help to flush harmful metabolic debris out of your muscles," says David Terry, M.D., an ultrarunner who has finished both the Western States 100-Mile Endurance Run and the Wasatch Front 100-Mile Endurance Run 10 consecutive times." Read more: <http://www.sweatonceaday.com/2011/07/how-to-take-an-ice-bath.html#ixzz39ffGx0nv>

<http://ghsa.net/there-are-2-rs-recovery>

Recommendation of "cool first, transport second": from NATA June 27 new position statement...

<http://www.athleticbusiness.com/industry-press-room/nata-issues-new-heat-guidelines-and-research-at-conference.html>

The current document now states that a patient suspected of having exertional heat stroke must be cooled via cold water immersion for the full treatment time prior to being transported to a hospital; and that this must be stated in the school's emergency action plan.

Always follow the required heat/humidity/hydration policy!

Overuse Injuries - <https://trackandfieldtoolbox.net/distance/back-on-track-overuse-injuries>

“A second place hurts more than a stress fracture” -- NOT TRUE

- 1) Plantar fasciitis - If your heel is killing you, it is time to stop running & rehabilitate or you could be out for a while
 - a) Definition: overstretching of plantar fascia - tissue that goes from heel to toes and supports arch of foot
 - b) Early warning sign: general soreness on calcaneus (heel bone) and plantar fascia; sharp pain on first step out of bed
 - c) Causes: prolonged foot pronation (low arch) & weakness in posterior tibialis, gluteus medius, gluteus minimus, and quadriceps.
 - i) Another thing to evaluate is ankle joint motion: dorsiflexion- limited dorsiflexion can be caused by tight achilles tendon
 - d) Intervention: stretching & wearing night splint
 - i) Stretching: Passively dorsiflex ankle then apply pressure to fully extend the toes back towards the shin 3-4x daily
 - ii) Calf raises
 - iii) Isolating gluteus maximus muscles
 - iv) Pool workouts to maintain fitness

- 2) Achilles tendinosis - Actual degradation of tendon, not just inflammation (tendonitis)
 - a) Symptoms: pain over back of heel
 - b) Causes: excessive pronation, inflexibility at ankle joint from shortening of gastrocnemius and soleus
 - c) Prevention: Ankle motion and stability
 - d) Signs: grinding or popping sensation in heel
 - e) Intervention: No impact activity, strengthen peroneal tendons and tibialis anterior, stretching hip flexor, quads, hamstring, and increasing range of motion
 - i) Calf raises, joint mobilization of ankle, midfoot mobilization, gluteus maximus strengthening, swimming
 - ii) Slow increase into training mileage

SUMMARY:

Your body needs time to recover between training. If you don't allow for rebuilding, your damaged tissue can't repair itself and you remain in a state of breakdown as micro tears pile up in your weak areas of your body: this causes overuse injuries.

A good idea is to incorporate low impact high-intensity workouts like swimming, cycling, aqua jogging etc. to keep tissues strong and reduce force on ligaments and tendons.

Shoes, running surface, and diet are also important factors to consider: keep shoes fresh, surfaces soft, and diet balanced.